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K-7383(216)

24 February 1966

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AN-22 (COCK) AIRCRAFT
USSR

1. SIGNIFICANCE: CHRONOLOGICAL STUDY OF THE AN-22 (COCK)
2. BACKGROUND: THE MAJOR LIMITING FACTOR IN SOVIET AIRBORNE OPERATIONS IS AIRLIFT CAPABILITY. NEED OF A LARGE CARGO TRANSPORT WAS EXPRESSED EARLY IN 1962 BY GENERAL G.S. SCHETSHIKOV, FIRST DEPUTY CHIEF OF AERO-FLOT, WHEN HE LISTED AMONG THE CARRIER'S TOP NEEDS "THE DEVELOPMENT OF SPECIAL CARGO AIRCRAFT CAPABLE OF DELIVERING LARGE-DIMENSION LOADS TO THE SITES OF NEW CONSTRUCTION PROJECTS". ACCORDING TO CHIEF MARSHAL OF AVIATION K. VERSHININ, THE ROLE OF THE MILITARY TRANSPORT HAS INCREASED. THUS THE TRANSPORT IS BEING DEVELOPED AT A MUCH HIGHER RATE THAN OTHER TYPES OF AIRCRAFT.

IN A CLASSIFIED DOCUMENT, A SOVIET GENERAL STATED THAT WHEN THE AN-22 BECAME OPERATIONAL, IT WOULD BE POSSIBLE TO TRANSPORT ENTIRE MOTORIZED RIFLE AND TANK DIVISIONS, AND MISSILE AND OTHER UNITS BY AIR.

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PRODUCTION FACILITY.

B. BETWEEN 1959 AND 1964, THE FLOOR SPACE AT "CHKALOV" AIRFRAME PLANT 84B, TASHKENT WAS INCREASED FROM 0.75 TO 2.8 MILLION SQ FT AND A NEW FLY-AWAY FIELD 8,500 FT LONG WAS COMPLETED IN JUN 64.

C. [REDACTED] REVEALED A LARGE NEW-TYPE AIRCRAFT AT KIIYEV/ SVYATOSHINO, THE TEST AND FLY-AWAY FIELD FOR ASSEMBLY PLANT 473. IT APPEARED TO BE OF CONVENTIONAL CONFIGURATION WITH A HIGH STRAIGHT-WING AND SINGLE TAIL. APPROXIMATE DIMENSIONS WERE 225 FT WING SPAN AND 180 FT FUSELAGE LENGTH.

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D. IN FEB 65, [REDACTED] KIIYEV AND OBSERVED A NEW "VERY LARGE" AIRCRAFT PARKED NEAR ASSEMBLY PLANT 473. HE SAID THAT TWO AN-12'S (CUB) PARKED NEARBY SEEMED SMALL BY COMPARISON. SALIENT FEATURES OF THE AIRCRAFT INCLUDED A HIGH "DROOPING" WING, TWIN TAILS, A WIDE SQUAT FUSELAGE AND FOUR ENGINES TURNING 4-BLADE PROPS.

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E. [REDACTED] REVEALED THE AN-22 PARKED IN THE WEAPONS LOADING AREA AT CHEPELEVKA AIRFIELD.

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G. IN JUN 65, THE SOVIET UNION UNVEILED THE AN-22 AT THE PARIS INTERNATIONAL AIR SHOW. DURING THE SHOW, [] INDICATED THAT THE PLANE WAS A PROTOTYPE AND THAT SEVERAL ADDITIONAL AIRCRAFT WERE BEING BUILT AND WOULD BE IN AEROFLOT SERVICE WITHIN TWO YEARS. EXTENSIVE PHOTOGRAPHY WAS OBTAINED.

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H. [] AFTER THE PARIS DISPLAY, TRAVELERS ON A WESTERN AIRLINE FLIGHT OUTBOUND FROM MOSCOW OBSERVED AND PHOTOGRAPHED THE AN-22 AT MOSCOW/SHERMETYEVO AIRFIELD.

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I. [] REVEALED THE AN-22 (COCK) AT GOSTOMEL AIRFIELD. THIS WAS THE FIRST SIGHTING OF THE AIRCRAFT AT A FACILITY HAVING A GRADED EARTH RUNWAY. []

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J. ON 18 AUG 65, A MOSCOW TV FILM ENTITLED "WINGED DEFENSE OF THE FATHERLAND" SHOWED THE AN-22 LANDING ON WHAT APPEARED TO BE A SOD/GRADED EARTH RUNWAY.

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L. [] REVEALED A PARTIALLY ASSEMBLED COCK AT "CHKALOV" AIRFRAME PLANT 84B AND A SECOND AN-22 AT TASHKENT AIRFIELD, THE FLY-AWAY

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FACILITY.

4. ENGINEERING: DEVELOPMENT OF THE AN-22 WAS NOT AN UNEXPECTED ACHIEVEMENT SINCE PREVIOUS WORK BY ANTONOV'S OKB DEMONSTRATED THAT THE TECHNOLOGY AND MANPOWER WERE AVAILABLE AS EARLY AS 1959-60. THE DEVELOPMENT CYCLE IS ESTIMATED AS FOLLOWS:

PRELIMINARY DESIGN AND MOCK-UP CONSTRUCTION	1959/60
DETAIL DESIGN	1961-1963
PROTOTYPE CONSTRUCTION	1962-1964
FIRST PROTOTYPE COMPLETED	MID-1964
YEAR IN SERVICE	1967

5. AIRFRAME:

PHOTOGRAPHY OF THE AN-22 DISPLAYED AT PARIS REVEALS NO UNUSUAL SOVIET CONSTRUCTION TECHNIQUES. RELATIVELY CONVENTIONAL CONSTRUCTION IS INDICATED WITH SOME PROGRESSION IN THE USE OF LARGE HEAVY PRESS FORGINGS FOR HIGHLY STRESSED STRUCTURAL MEMBERS AND THE PROBABLE USE OF INTEGRALLY STIFFENED PANELS ON WING SURFACES. THE FUSELAGE IS OF SEMI-MONOCOQUE CONSTRUCTION USING SKIN STRINGER PANEL FABRICATION TECHNIQUES WITH BUILT-UP FRAMES FOR CYLINDRICAL RIGIDITY. "GLUE WELDED" PANEL SECTIONS ARE APPARENT IN SOME FUSELAGE AREAS WHERE STRINGERS ARE ADHESIVELY BONDED AND SPOT WELDED TO THE SKIN. RIVETS ARE USED TO ATTACH PANEL SECTIONS TO THE FRAMES. EXTENSIVE RIVET

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PATTERNS REFLECT THE USE OF HEAVY BULKHEADS AT MAJOR LOAD CONCENTRATION POINTS. THERE ARE AT LEAST SEVEN BULKHEADS IN THE FUSELAGE.

6. PROPULSION SYSTEM:

PHOTO ANALYSIS OF THE AN-22 POWERPLANT INSTALLATION SHOWS THAT THE PROPELLERS, INLETS, AND OTHER NACELLE FEATURES ARE IDENTICAL TO THOSE OF THE NK-12M TURBOPROP ENGINES WHICH POWER THE CLEAT (TU-114). THE AN-22 PILOT STATED THAT THE ENGINES WERE THE SAME AS THOSE USED ON THE CLEAT BUT MORE POWERFUL. A PLACARD DISPLAYED WITH THE AN-22 LISTED THE ENGINES AS HAVING 15,000 ESHP. ACOUSTIC ANALYSIS OF ENGINE SOUND RECORDINGS OBTAINED AT PARIS REVEAL NO DISCERNIBLE DIFFERENCE IN COMPRESSOR BLADE NUMBER OR GEARBOX REDUCTION RATIO BETWEEN THE AN-22 AND TU-114 ENGINES.

THE SOVIET PRESS HAS ANNOUNCED THAT THE AN-22 HAS BUILT-IN EQUIPMENT WHICH CAN BE OPERATED FROM THE CABIN TO AUTOMATICALLY CONTROL THE TIRE PRESSURE FROM 37 TO 74 PSI BEFORE LANDING AND TAKEOFF.

7. SPECIFICATIONS:

WING SPAN	211.4 FT
FUSELAGE LENGTH	187 FT
GROSS WEIGHT	ABOUT 400,000 LBS
MAX CARGO	176,000 LBS
NUMBER OF TROOPS	400
RANGE	5,900 NM

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RANGE WITH MAX CARGO	2,700 NM
CRUISE SPEED	320 K
SERVICE CEILING	42,000 FT

ADDITIONAL DETAILS ON THE AN-22 AIRFRAME AND POWERPLANT ARE PUBLISHED
IN THE AFSC FOREIGN TECHNOLOGY BULLETIN FTD-TA-65-22, 23 JUL 1965 (SECRET).

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